

Remarks

In view of the above amendments and the following remarks, reconsideration of the rejections and further examination are requested.

Claims 1-11 have been rejected under 35 U.S.C. §103(a) as being obvious over Uchiyama (US 6,163,409) in view of Hoshino (US 5,615,200). Claim 2 has been rejected under 35 U.S.C. §103(a) as being obvious over Uchiyama in view of Hoshino and further in view of Sasaki (US 5,493,554).

Claim 1 has been amended so as to further distinguish the present invention, as recited therein, from the references. As a result, the above-mentioned rejections are no longer applicable to the claims for the following reasons.

Claim 1 is patentable over the combination of Uchiyama and Hoshino, since claim 1 recites an optical pickup device including, in part, a light path length conversion unit comprising a single prism mirror provided between a synthesizing unit and a converging unit and positioned such that a light beam passes therethrough, the single prism mirror being operable to reflect the light beam passing therethrough at a slope surface thereof, thereby lengthening a light path length of the light beam. The combination of Uchiyama and Hoshino fails to disclose or suggest the light path length conversion unit as recited in claim 1.

Uchiyama discloses an optical head including first and second light sources 11 and 21. The optical head also includes a beam splitter 13-1, a collimator lens 14, a prism 15, a dichroic filter 19 and an objective lens 16. During operation, the beam splitter 13-1 receives a light beam from either the first or second light source 11 or 21 and guides the beam to the collimator lens 14. The collimator lens 14 focuses the beam into a parallel beam and directs the parallel beam to an outer surface of the prism 15. The parallel beam is reflected by the outer surface of the prism 15 through the dichroic filter 19 and the objective lens 16 and forms a beam spot on the surface of an optical disk. (See column 6, line 51 – column 7, line 34 and Figures 1 and 6A).

In the rejection, it is indicated that the prism 15 of Uchiyama corresponds to the claimed light path length conversion unit, the beam splitter 13-1 corresponds to the synthesizing unit, and the objective lens 16 corresponds to converging unit. However, as discussed above and is illustrated in Figures 1 and 6A of Uchiyama, the prism 15 reflects the laser beam at its outer surface.

On the other hand, claim 1 recites that the single prism mirror of the light path length conversion unit is positioned such that a light beam passes therethrough, and that the single prism mirror is operable to reflect the light beam passing therethrough at a slope surface thereof, thereby lengthening a light path length of the light beam. It is apparent that the prism 15 is not positioned and does not operate in the manner of the claimed single prism mirror of the light path length conversion unit. Therefore, Hoshino must disclose or suggest this feature in order for the combination of Uchiyama and Hoshino to render claim 1 obvious.

Regarding Hoshino, it discloses a light beam shaping device for an optical head. The light beam shaping device includes a beam shaping splitter 86 that includes a beam shaping surface 87, a reflective surface 88 and an exit surface 89. (See column 14, line 42 – column 15, line 7 and Figures 9-11). In the rejection, the beam shaping splitter 86 is relied upon as corresponding to the light path length conversion unit operable to lengthen a light path by allowing a light beam to pass therethrough. However, it is clear that the beam shaping splitter 86 is not a single prism mirror as is now recited in claim 1. Therefore, Hoshino fails to address the deficiency of Uchiyama. As a result, the combination of Uchiyama and Hoshino fails to render claim 1 obvious.

Further, it is noted that one of the benefits of the use of the signal prism mirror to lengthen the light path, as recited in claim 1, as opposed to the beam shaping splitter 86 disclosed in Hoshino is that the prism mirror is a less complicated design than that of the beam shaping splitter 86. Therefore, the production costs can be reducing in manufacturing the optical pickup device in claim 1 as compared to those associated with the optical head utilizing the beam shaping splitter 86 of Hoshino.

Regarding Sasaki, it is relied upon as disclosing a dichroism beam splitter 9, and a first semiconductor laser 1 and a second semiconductor laser 6 that are positioned to emit light in directions that are perpendicular to each other. However, Sasaki also fails to disclose or suggest the light path length conversion unit as recited in claim 1.

In addition to being patentable over the references for the reasons set forth above in support of claim 1, claim 12 is further patentable over the references, since claim 12 recites that the first and second light sources are positioned such that the synthesizing unit receives the second light beam from a direction perpendicular to a direction of the first light beam. The combination of

Uchiyama, Hoshino and Sasaki cannot be combined in the manner set forth in the rejection of claim 12.

Hoshino, as discussed above, is relied upon as disclosing the beam shaping splitter 86. Hoshino does not disclose or suggest first and second light sources positioned such that a synthesizing unit receives a second light beam from a direction perpendicular to a direction of a first light beam.

As discussed above, Uchiyama does disclose the first and second light sources 11 and 21. However, Figure 1 of Uchiyama illustrates that the first and second light sources 11 and 21 are positioned in a manner whereby the light beams emitted therefrom are not perpendicular. Further, Uchiyama specifically discloses that the first and second light sources 11 and 21 are positioned such that their laser beams intersect each other at an angle other than 90° to reduce the size of the optical head. (See column 7, lines 48-54 and column 12, lines 38-44).

As also discussed above, Sasaki discloses the first and second semiconductor lasers 1 and 6 that are positioned to emit light in directions that are perpendicular to each other and that such positioning of the first and second semiconductor lasers 1 and 6 reduces production costs. (See column 21, lines 57-63).

In the rejection, it is indicated that it would have been obvious to modify the positioning of the first and second light sources 11 and 21 of Uchiyama to be perpendicular as disclosed in Sasaki because it would result in reduced production costs as also disclosed in Sasaki. However, it is apparent that such a modification of the positioning of the first and second light sources 11 and 21 of Uchiyama would not have been obvious to one of ordinary skill in the art because it is directly contrary to the purpose of the actual positioning of the first and second light sources 11 and 21 as explicitly set forth in Uchiyama. Uchiyama explicitly states that the first and second light sources 11 and 21 are not to be positioned at 90° with respect to each other (i.e., perpendicular) so that the optical head can be made smaller. Therefore, the rationale for modifying the positioning of the first and second light sources 11 and 21 to reduce cost has no merit because it does exactly what Uchiyama seeks to avoid, an increase in size of the optical head. The Federal Circuit has stated that if, in order to meet the limitations of a claim, a device in a prior art patent would have to be modified in a manner as to render it inoperable for its intended purpose, then in effect, that patent

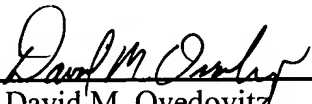
teaches away from the proposed modification. (See *In re Gordon*, 221 USPQ 1125, 1127 (Fed. Cir. 1984)). This is clearly the case in the present situation. As a result, the combination of Uchiyama, Hoshino and Sasaki is improper and fails to disclose or suggest the above-discussed feature of claim 12.

Because of the above-mentioned distinctions, it is believed clear that claims 1-12 are patentable over the references relied upon in the rejections. Furthermore, it is submitted that the distinctions are such that a person having ordinary skill in the art at the time of invention would not have been motivated to make any combination of the references of record in such a manner as to result in, or otherwise render obvious, the present invention as recited in claims 1-12. Therefore, it is submitted that claims 1-12 are clearly allowable over the prior art of record.

In view of the above amendments and remarks, it is submitted that the present application is now in condition for allowance. The Examiner is invited to contact the undersigned by telephone if it is felt that there are issues remaining which must be resolved before allowance of the application.

Respectfully submitted,

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